

JG10 Recd/PCT/PTO 10/031928
24 JAN 2002

Practitioner's Docket No. 6540

CHAPTER II

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.' " M.P.E.P., § 601, 7th ed.

TRANSMITTAL LETTER
TO THE UNITED STATES ELECTED OFFICE (EO/US)

(ENTRY INTO U.S. NATIONAL PHASE UNDER CHAPTER II)

PCT/GB99/02435	26 July 1999	26 July 1999
INTERNATIONAL APPLICATION NO	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
ANTI-SCALING DEVICE		
TITLE OF INVENTION		

APPLICANT(S)

MOSS, Frederick James; HOLLAND, Janusz Lucien; and HUGHES, Mark Christopher

Box PCT

Assistant Commissioner for Patents

Washington D.C. 20231

ATTENTION: EO/US

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is **mandatory**.)

(Express Mail certification is **optional**.)

I hereby certify that this Transmittal Letter and the papers indicated as being transmitted therewith is being deposited with the United States Postal Service on this date 24 January 2002, in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EL737903467US, addressed to the: Assistant Commissioner for Patents, 2900 Crystal Drive, Arlington, VA 22202.

Sarah E. Kennedy

(type or print name of person mailing paper)



Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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JUN 18 REC'D PCT/PRO 2124 JAN 2002

NOTE: To avoid abandonment of the application, the applicant shall furnish to the USPTO, not later than 20 months from the priority date: (1) a copy of the international application, unless it has been previously communicated by the International Bureau or unless it was originally filed in the USPTO; and (2) the basic national fee (see 37 C.F.R. § 1.492(a)). The 30-month time limit may not be extended. 37 C.F.R. § 1.495.

WARNING: Where the items are those which can be submitted to complete the entry of the international application into the national phase are subsequent to 30 months from the priority date the application is still considered to be in the international state and if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. § 1.10 must be used (since international application papers are not covered by an ordinary certificate of mailing—See 37 C.F.R. § 1.8).

NOTE: Documents and fees must be clearly identified as a submission to enter the national state under 35 U.S.C. § 371 otherwise the submission will be considered as being made under 35 U.S.C. § 111. 37 C.F.R. § 1.494(f).

I. Applicant herewith submits to the United States Elected Office (EO/US) the following items under 35 U.S.C. § 371:

- a. This express request to immediately begin national examination procedures (35 U.S.C. § 371(f)).
- b. The U.S. National Fee (35 U.S.C. § 371(c)(1)) and other fees (37 C.F.R. § 1.492) as indicated below:

2. Fees

CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
<input checked="" type="checkbox"/>	TOTAL CLAIMS	10 -20 =	0	× \$18.00 =	\$ 0.00
	INDEPENDENT CLAIMS	1 -3 =	0	× \$80.00 =	0.00
	MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	
BASIC FEE**	<input type="checkbox"/> U.S. PTO WAS INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where an International preliminary examination fee as set forth in § 1.482 has been paid on the international application to the U.S. PTO: <input type="checkbox"/> and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(1) to (4) have been satisfied for all the claims presented in the application entering the national stage (37 C.F.R. § 1.492(a)(4)) \$100.00 <input type="checkbox"/> and the above requirements are not met (37 C.F.R. § 1.492(a)(1)) \$690.00 <input checked="" type="checkbox"/> U.S. PTO WAS NOT INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where no international preliminary examination fee as set forth in § 1.482 has been paid to the U.S. PTO, and payment of an international search fee as set forth in § 1.445(a)(2) to the U.S. PTO: <input type="checkbox"/> has been paid (37 C.F.R. § 1.492(a)(2)) \$710.00 <input type="checkbox"/> has not been paid (37 C.F.R. § 1.492(a)(3)) \$1000.00 <input checked="" type="checkbox"/> where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 C.F.R. § 1.492(a)(5)) \$860.00				
	Total of above Calculations			= \$890.00	
SMALL ENTITY	Reduction by 1/2 for filing by small entity, if applicable. Affidavit must be filed also. (note 37 C.F.R. § 1.9, 1.27, 1.28)			- \$445.00	
	Subtotal			\$445.00	
	Total National Fee			\$ 445.00	
	Fee for recording the enclosed assignment document \$40.00 (37 C.F.R. § 1.21(h)). (See Item 13 below). See attached "ASSIGNMENT COVER SHEET".				
TOTAL			Total Fees enclosed	\$ 445.00	

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*See attached Preliminary Amendment Reducing the Number of Claims.

Attached is a check money order in the amount of \$ 445.00

Authorization is hereby made to charge the amount of \$ _____
 to Deposit Account No. 19-0079
 to Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should **not** be included on this form as it may become public.

Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

A duplicate of this paper is attached.

****WARNING:** "To avoid abandonment of the application the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 30 months from the priority date: * * * (2) the basic national fee (see § 1.492(a)). The 30-month time limit may not be extended." 37 C.F.R. § 1.495(b).

WARNING: If the translation of the international application and/or the oath or declaration have not been submitted by the applicant within thirty (30) months from the priority date, such requirements may be met within a time period set by the Office. 37 C.F.R. § 1.495(b)(2). The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than thirty (30) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than thirty (30) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 apply to the period which is set. Notice of Jan. 3, 1993, 1147 O.G. 29 to 40.

3. A copy of the International application as filed (35 U.S.C. § 371(c)(2)):

NOTE: Section 1.495 (b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 30 months from the priority date to avoid abandonment. "The International Bureau normally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage, the applicant normally need only check to be sure the notice from the International Bureau has been received and then pay the basic national fee by 30 months from the priority date." Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35-36. See item 14c below.

- a. is transmitted herewith.
- b. is not required, as the application was filed with the United States Receiving Office.
- c. has been transmitted
 - i. by the International Bureau.
Date of mailing of the application (from form PCT/1B/308):

 - ii. by applicant on _____. (Date)

4. A translation of the International application into the English language (35 U.S.C. § 371(c)(2)):

- a. is transmitted herewith.
- b. is not required as the application was filed in English.
- c. was previously transmitted by applicant on _____. (Date)
- d. will follow.

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5. Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. § 371(c)(3));

NOTE: *The Notice of January 7, 1993 points out that 37 C.F.R. § 1.495(a) was amended to clarify the existing and continuing practice that PCT Article 19 amendments must be submitted by 30 months from the priority date and this deadline may not be extended. The Notice further advises that: "The failure to do so will not result in loss of the subject matter of the PCT Article 19 amendments. Applicant may submit that subject matter in a preliminary amendment filed under section 1.121. In many cases, filing an amendment under section 1.121 is preferable since grammatical or idiomatic errors may be corrected." 1147 O.G. 29-40, at 36.*

a. are transmitted herewith.

b. have been transmitted

i. by the International Bureau.

Date of mailing of the amendment (from form PCT/1B/308):

ii. by applicant on 9 May 2000. (Date)

c. have not been transmitted as

i. applicant chose not to make amendments under PCT Article 19.
Date of mailing of Search Report (from form PCT/ISA/210.):

ii. the time limit for the submission of amendments has not yet expired.
The amendments or a statement that amendments have not been made will be transmitted before the expiration of the time limit under PCT Rule 46.1.

6. A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. § 371(c)(3));

a. is transmitted herewith.

b. is not required as the amendments were made in the English language.

c. has not been transmitted for reasons indicated at point 5(c) above.

7. A copy of the international examination report (PCT/IPEA/409)

is transmitted herewith.

is not required as the application was filed with the United States Receiving Office.

8. Annex(es) to the international preliminary examination report

a. is/are transmitted herewith.

b. is/are not required as the application was filed with the United States Receiving Office.

9. A translation of the annexes to the international preliminary examination report

a. is transmitted herewith.

b. is not required as the annexes are in the English language.

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10. An oath or declaration of the inventor (35 U.S.C. § 371(c)(4)) complying with 35 U.S.C. § 115

a. was previously submitted by applicant on _____
Date
b. is submitted herewith, and such oath or declaration
i. is attached to the application.
ii. identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or 3(c) and 5(b); and states that they were reviewed by the inventor as required by 37 C.F.R. § 1.70.
c. will follow.

II. Other document(s) or information included:

11. An International Search Report (PCT/ISA/210) or Declaration under PCT Article 17(2)(a):

a. is transmitted herewith.
b. has been transmitted by the International Bureau.
Date of mailing (from form PCT/IB/308): _____
c. is not required, as the application was searched by the United States International Searching Authority.
d. will be transmitted promptly upon request.
e. has been submitted by applicant on _____
Date

12. An Information Disclosure Statement under 37 C.F.R. §§ 1.97 and 1.98:

a. is transmitted herewith.

Also transmitted herewith is/are:

Form PTO-1449 (PTO/SB/08A and 08B).
 Copies of citations listed.
b. will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. § 371(c).
c. was previously submitted by applicant on _____
Date

13. An assignment document is transmitted herewith for recording.

A separate "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or FORM PTO 1595 is also attached.

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14. Additional documents:

- a. Copy of request (PCT/RO/101)
- b. International Publication No. WO 01/07733
 - i. Specification, claims and drawing
 - ii. Front page only
- c. Preliminary amendment (37 C.F.R. § 1.121)
- d. Other

Form PCT/IPEA/402; Form PCT/IB/332; Letter to WIPO re:
Article 19 Claim amendments

15. The above checked items are being transmitted

- a. before 30 months from any claimed priority date.
- b. after 30 months.

16. Certain requirements under 35 U.S.C. § 371 were previously submitted by the applicant on _____, namely:

AUTHORIZATION TO CHARGE ADDITIONAL FEES

WARNING: Accurately count claims, especially multiple dependant claims, to avoid unexpected high charges if extra claims are authorized.

NOTE: "A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

NOTE: "Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

Please charge, in the manner authorized above, the following additional fees that may be required by this paper and during the entire pendency of this application:

- 37 C.F.R. § 1.492(a)(1), (2), (3), and (4) (filing fees)

WARNING: Because failure to pay the national fee within 30 months without extension (37 C.F.R. § 1.495(b)(2)) results in abandonment of the application, it would be best to always check the above box.

(Transmittal Letter to the United States Elected Office (EO/US) [13-18]—page 7 of 8)

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37 C.F.R. § 1.492(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possible when dealing with amendments after final action.

37 C.F.R. § 1.17 (application processing fees)

37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a)).

37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 C.F.R. § 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

37 C.F.R. § 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 30 months after the priority date).



SIGNATURE OF PRACTITIONER

Arlene J. Powers

(type or print name of practitioner)

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P.O. Address

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ext. 110

Customer No.:

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6540

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Moss et al.

GROUP: Unknown

#3/
A

SERIAL NO: Unknown

EXAMINER: Unknown

FILED: Herewith

FOR: ANTI-SCALING DEVICE

Assistant Commissioner of Patents

Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Preliminary to examination, please amend the above-identified application as follows:

IN THE ABSTRACT:

An abstract is attached hereto on a separate sheet.

IN THE CLAIMS:

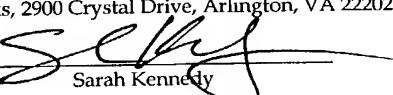
Please amend claim 1 as follows:

- 1 1. (Amended) An anti-scaling device comprising a hollow central body portion for mounting on a bar around a transverse axis and several spike units extending outwardly from the body portion in different directions wherein the spike units are rotatably mounted on the central body portion around axes non-congruent with the transverse axis.

Please amend claim 2 as follows:

- 1 2. (Amended) An anti-scaling device according to claim 1, wherein the spike units are detachably mounted on the central body portion.

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited on January 24, 2002 in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EL737903467US addressed to the: Commissioner of Patents and Trademarks, 2900 Crystal Drive, Arlington, VA 22202.


Sarah Kennedy

3003 3028 406 4002

Please amend claim 3 as follows:

3. (Amended) An anti-scaling device according to claim 1, wherein there are pairs of
spike units disposed in a diametrically opposed relationship relative to the central body portion.

Please amend claim 4 as follows:

1 4. (Amended) An anti-scaling device according to claim 1, wherein the central body
2 portion has spigots for mounting the spike units.

Please amend claim 5 as follows:

1 5. (Amended) An anti-scaling device according to claim 1 further comprising serrated
2 webs extending outwardly from the central body portion between the spike units.

Please amend claim 6 as follows:

1 6. (Amended) An anti-scaling device according to claim 5, wherein the serrated webs
2 extend along radial axes displaced 45° from the radial axes of the spike units.

Please amend claim 7 as follows:

1 7. (Amended) An anti-scaling device according to claim 1, wherein rows of sharp-edged
2 teeth are axially aligned along the central body portion.

Please amend claim 8 as follows:

1 8. (Amended) An anti-scaling device according to claim 1, wherein the spike units are in
2 the form of partially rotatable serrated propellers.

Please amend claim 9 as follows:

1 9. (Amended) An anti-scaling device according to claim 1, wherein the spike units are
2 pivotably mounted.

Please amend claim 10 as follows:

1 10. (Amended) An anti-scaling device according to claim 1, wherein the device is
2 moulded from a plastics material.

REMARKS

The present preliminary amendment is submitted in order to correct the improper multiple dependency of claims as originally filed and to incorporate changes made in the corresponding PCT application.

Examination on the merits is respectfully requested.

Respectfully submitted,


Arlene J. Powers
Registration No. 35,985
Samuels, Gauthier & Stevens
225 Franklin Street, Suite 3300
Boston, Massachusetts 02110
Telephone: (617) 426-9180
Extension 110

ABSTRACT

An anti-scaling device comprises a hollow central body for mounting on a bar and several spike units extending outwardly from the body in different directions. Pairs of spike units are rotatably and preferably detachably mounted on opposite sides of the central body.

5 The device may further comprise serrated webs extending outwardly from the central body between the spike units. The device may also comprise rows of sharp-edged teeth axially aligned along the central body. Alternatively, the spike units may be partially rotatable serrated propellers or may be pivotably rotatably mounted. The device may be moulded from plastic material.

IN THE CLAIMS:

Claim 1 has been amended as follows:

- 1 1. (Amended) An anti-scaling device comprising a hollow central body portion [(1)] for mounting on a bar around a transverse axis and several spike units [(5)] extending outwardly from the body portion [(1)] in different directions wherein the spike units [(5)] are rotatably mounted on the central body portion [(1)] around axes non-congruent with the transverse axis.

Claim 2 has been amended as follows:

- 1 2. (Amended) An anti-scaling device according to claim 1, wherein the spike units [(5)] are detachably mounted on the central body portion [(1)].

Claim 3 has been amended as follows:

- 1 3. (Amended) An anti-scaling device according to [claims 1 or 2] claim 1, wherein there are pairs of spike units [(5)] disposed in a diametrically opposed relationship relative to the central body portion [(1)].

Claim 4 has been amended as follows:

- 1 4. (Amended) An anti-scaling device according to [any one or more of claims 1,2 or 3] claim 1, wherein the central body portion [(1)] has spigots [(20)] for mounting the spike units [(5)].

Version Showing Changes Made

Claim 5 has been amended as follows:

1 5. (Amended) An anti-scaling device according to [any one of claims 1, 2, 3 or 4 and]
2 claim 1 further comprising serrated webs [(7)] extending outwardly from the central body
3 portion [(1)] between the spike units [(5)].

Claim 6 has been amended as follows:

1 6. (Amended) An anti-scaling device according to claim 5, wherein the serrated webs
2 [(7)] extend along radial axes displaced 45° from the radial axes of the spike units [(5)].

Claim 7 has been amended as follows:

1 7. (Amended) An anti-scaling device according to [any one or more of claims 1, 2, 3
2 or 4] claim 1, wherein rows of sharp-edged teeth [(15)] are axially aligned along the central
3 body portion [(1)].

Claim 8 has been amended as follows:

1 8. (Amended) An anti-scaling device according to [any one or more of claims 1 to 3]
2 claim 1, wherein the spike units [(5)] are in the form of partially rotatable serrated propellers
3 [(37)].

Claim 9 has been amended as follows:

1 9. (Amended) An anti-scaling device according to [any one or more of claims 1 to 4]
2 claim 1, wherein the spike units [(5)] are pivotably mounted.

Version Showing Changes Made

Claim 10 has been amended as follows:

- 1 10. (Amended) An anti-scaling device according to [any one or more of the preceding
- 2 claims] claim 1, wherein the device is moulded from a plastics material.

ANTI-SCALING DEVICE

7/ptd

Field of Invention

5 This invention relates to anti-scaling device, particularly rotary anti-scaling devices which can be positioned on top of fences, walls and gates in order to prevent potential intruders scaling such structures.

Description of Art

10 Rotary anti-scaling devices generally comprise metal spike units extending from a central mounting bar or vanes of expanded metal projecting from a central rotary bar. These arrangements are prone to scaling using rope and are of relatively fragile construction. Furthermore they are relatively expensive to produce and are aesthetically unappealing.

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Other devices consist of two identical halves of plastics material designed to connect together to form unitary spikes and be rotatably mounted on an associated bar.

It is an object of the present invention to provide a more effective anti-scaling
20 device of relatively inexpensive construction.

Summary of the Invention

According to the present invention there is provided an anti-scaling device comprising a hollow central body portion for mounting on a bar and several spike units

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extending outwardly from the body portion in different directions wherein the spike units are rotatably mounted and preferably rotatably and detachably mounted on the central body portion.

5 Preferably there are pairs of spike units extending in a diametrically opposed relationship from the central body portion. It is convenient to make the spike unit separately from the body portion and to mount the spike units for rotation about radial axes extending out from the body portion. In addition serrated webs can be disposed between the spike units. This particular construction makes it virtually impossible for
10 an intruder to grab hold of any part of the device, tamper with or attach a rope to it

The spike unit may have a plurality of generally arcuate blade-like projections with sharp edges and a sharp tip. These spike units when not in use can be detached and replaced in the event of any damage or according to the structure they are
15 securing

The device with its various components may be made from any tough, resilient material. Ideally, the device is moulded from a plastics material, particularly a high impact thermoplastic material. The device with its various components can come in an
20 assortment of colours for decorative purposes.

In use the anti-scaling device is rotatably mounted on a bar which passes through the hollow central body portion along the transverse axis. Preferably a plurality of such anti-scaling devices are rotatably mounted on a bar with the ends of

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respective central body portions abutting each other. The bar can then be fixed to an associated structure such as a fence, gate or wall etc.

The invention may be understood more readily and various other aspects and
5 features of the invention may become apparent from consideration of the following description

Embodiments of the present invention will now be described with reference to the accompanying drawings in which

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Brief Description of the Drawings

Figure 1 is a perspective view of a first embodiment of an anti-scaling device constructed in accordance with the invention,

15 Figure 2 is an inverted plan view of the first embodiment of the anti-scaling device taken in the direction of arrow A in Figure 1;

Figure 3 is a side view of the first embodiment of the anti-scaling device;

20 Figure 4 is an expanded perspective view illustrating a second embodiment of an anti-scaling device constructed in accordance with the invention,

Figure 5 is a perspective view of a third embodiment of an anti-scaling device constructed in accordance with the invention,

Figure 6 is an expanded view of the embodiment shown in Figure 5,

Figure 7 is a perspective view of three bar-mounted illustrations of a fourth
5 embodiment of an anti-scaling device constructed in accordance with the invention;
and

Figure 8 is an expanded view of part of the fourth embodiment shown in Figure

7

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Detailed Description of the Invention

Referring to Figures 1, 2 and 3 the first embodiment of the device is composed of components moulded from a suitable plastics material and comprises a hollow central body portion 1 of a generally elongate cylindrical shape with a bore 9 extending along a central transverse axis 3. Extending radially in a diametrically opposed relationship from the central body portion 1 are two pairs of spigots (not shown) upon which separate spike units 5 are detachably and rotatably mounted. Each spike unit 5 has a central boss portion 21 composed of spaced apart webs 22 which taper inwardly to an apex 23. Surrounding the central portion 21 there are four arcuate blades 24 with knife-like sharp edges 25 and a sharp tip 26. Each unit 5 has a hollow base collar 35 which fits onto one of the spigots 20. Conveniently the collar 35 may have an internal rib which snap-fits into a groove in the spigot 20 so as to retain the units 5 on the spigot 20 yet allow for rotation thereabout. Also extending radially in a diametrically opposed relationship from the central body portion are two pairs of

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serrated webs 7 having sharp edges 11 and points 13, these webs extend along axes displaced 45° from the spigot axes (for clarity, only two webs are illustrated in Figure 1).

5 Figure 4 shows the second embodiment of the device. Like the first embodiment this embodiment comprises a central body portion 1 with bore 9 and diametrically opposed spike units 5 (of which only one is shown) Spigots 20 detachably and rotatably mount the spike units 5 to the central body 1. Four axially aligned rows of sharp-edged teeth 15 are positioned along the central body.

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Figures 5 and 6 show the third embodiment. The central body portion 1 is formed from two identical halves 17, 19 When assembled (Figure 5) the two halves 17, 19 form two radially extending and diametrically opposed sheath units 27. These sheath units 27 each comprise a radial dagger-like serrated blade 29, two diametrically-opposed axially aligned dagger-like serrated blades 31 and two externally serrated tangential sheaths 33. The sheaths 33 each hold a serrated two-bladed propeller 37 rotatably mounted analogous to the spike units 5 of the previous embodiments. The sheaths 33 allow the propellers 37 to partially rotate backwards and forwards as indicated by the arrows 39.

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Figures 7 and 8 illustrate the fourth embodiment. In Figure 7 three central body portions 1 are rotatably mounted on a bar 40. Two spike units 5 are mounted on each central body portion 1 although only one is fully illustrated The lower spike unit stem 41 represents the second spike unit in each case As can be seen the two spike

6

units are diametrically opposed. In another embodiment based on this fourth embodiment four diametrically opposed spike units per central body portion are present analogous to the first and second embodiments described above. As can be seen from Figure 8 in this fourth embodiment each spike unit 5 comprises a stem portion 43 and a cap portion 45. The stem portion 43 is attached to the central body and extends radially outwards to a moulded retention cup 47 which surrounds a radial pole 49 on which a moulded sphere 51 is mounted. Three serrated protrusions 53 extend radially from the retention cup 47. The cap portion 45 is covered in radially extending serrated protrusions 55 and sits on the moulded sphere 51 to pivot and rotate as a ball joint as illustrated by the arrows 57. A moulded spring is disposed on the pole 49 to centre the cap portion 45 generally as well as after tampering.

Although the present invention has been described with reference to several embodiments, it is apparent that the present invention is not limited to the aforesaid 15 embodiments, but various modifications can be attained without departing from its scope.

CLAIMS

1. An anti-scaling device comprising a hollow central body portion (1) for mounting on a bar around a transverse axis (3) and several spike units (5) extending outwardly from the body portion (1) in different directions wherein the spike units (5) are rotatably mounted on the central body portion (1) around axes non-congruent with the transverse axis (3).
- 10 2. An anti-scaling device according to claim 1, wherein the spike units (5) are detachably mounted on the central body portion (1).
3. An anti-scaling device according to claims 1 or 2, wherein there are pairs of spike units (5) disposed in a diametrically opposed relationship relative to the central body portion (1).
- 15 4. An anti-scaling device according to any one or more of claims 1, 2 or 3, wherein the central body portion (1) has spigots (20) for mounting the spike units (5).
- 20 5. An anti-scaling device according to any one of claims 1, 2, 3 or 4 and further comprising serrated webs (7) extending outwardly from the central body portion (1) between the spike units (5).

6. An anti-scaling device according to claim 5, wherein the serrated webs (7) extend along radial axes displaced 45° from the radial axes of the spike units (5).

7. An anti-scaling device according to any one or more of claims 1, 2, 3 or 4,
5 wherein rows of sharp-edged teeth (15) are axially aligned along the central body portion (1).

8. An anti-scaling device according to any one or more of claims 1 to 3, wherein the spike units (5) are in the form of partially rotatable serrated propellers (37).

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9. An anti-scaling device according to any one or more of claims 1 to 4, wherein the spike units (5) are pivotably mounted.

10. An anti-scaling device according to any one or more of the preceding claims,
15 wherein the device is moulded from a plastics material.

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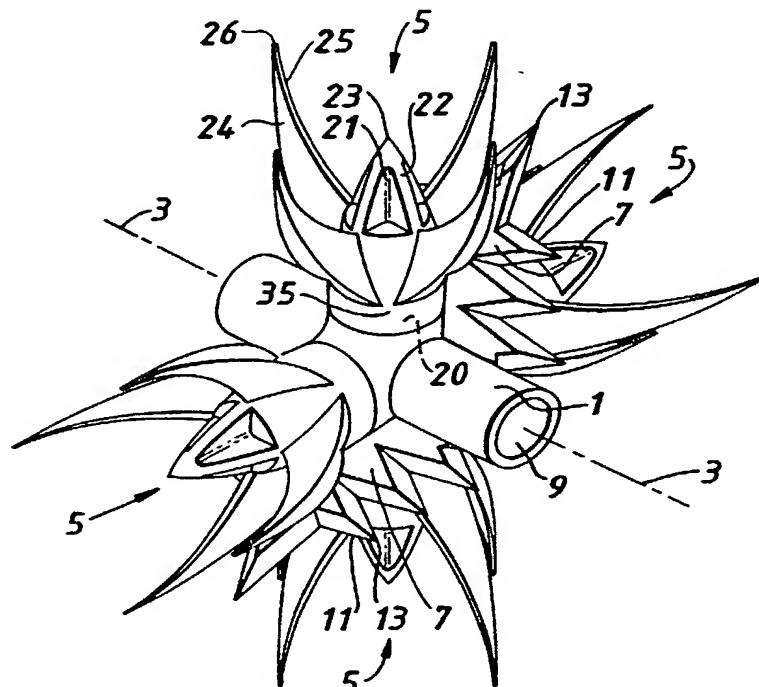
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(54) Title: ANTI-SCALING DEVICE

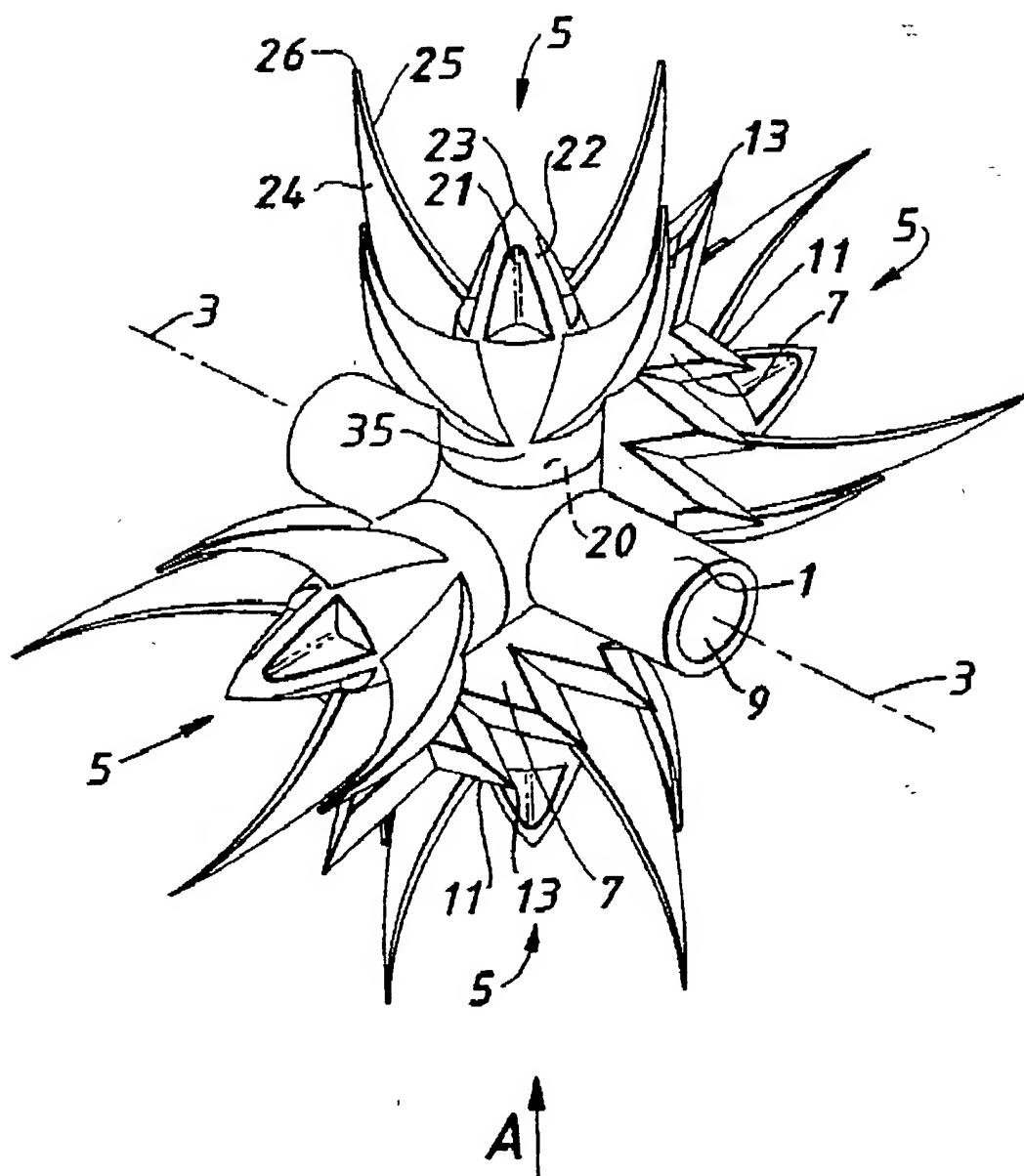


(57) Abstract: An anti-scaling device comprises a hollow central body (1) for mounting on a bar and several spike units (5) extending outwardly from the body (1) in different directions. Pairs of spike units (5) are rotatably and preferably detachably mounted on opposite sides of the central body (1). The device may further comprise serrated webs (7) extending outwardly from the central body (1) between the spike units (5). The device may also comprise rows of sharp-edged teeth (15) axially aligned along the central body (1). In an alternative embodiment the spike units (5) are in the form of partially rotatable serrated propellers (37). In another embodiment the spike units (5) are pivotably rotatably mounted. Preferably the device is moulded from plastics material.

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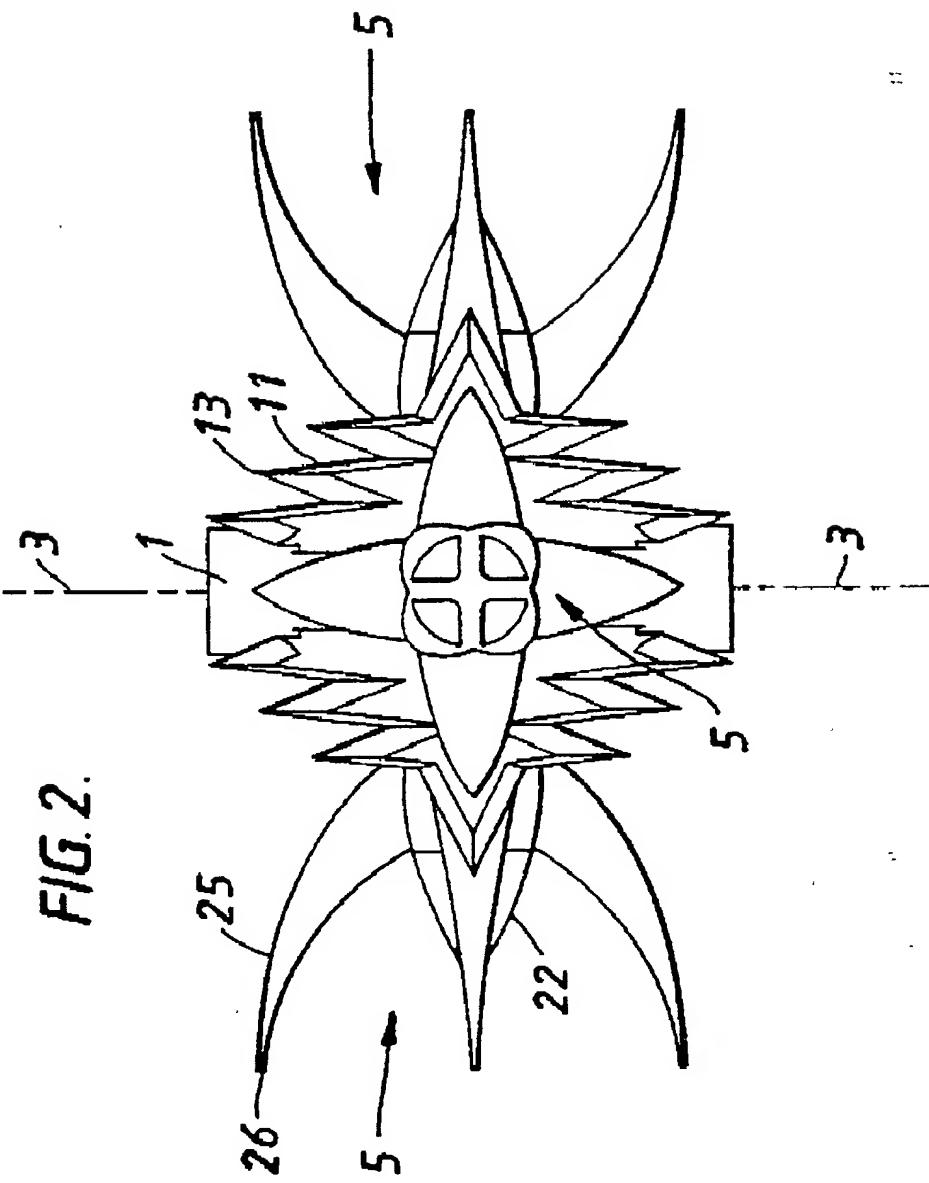
FIG. 1.



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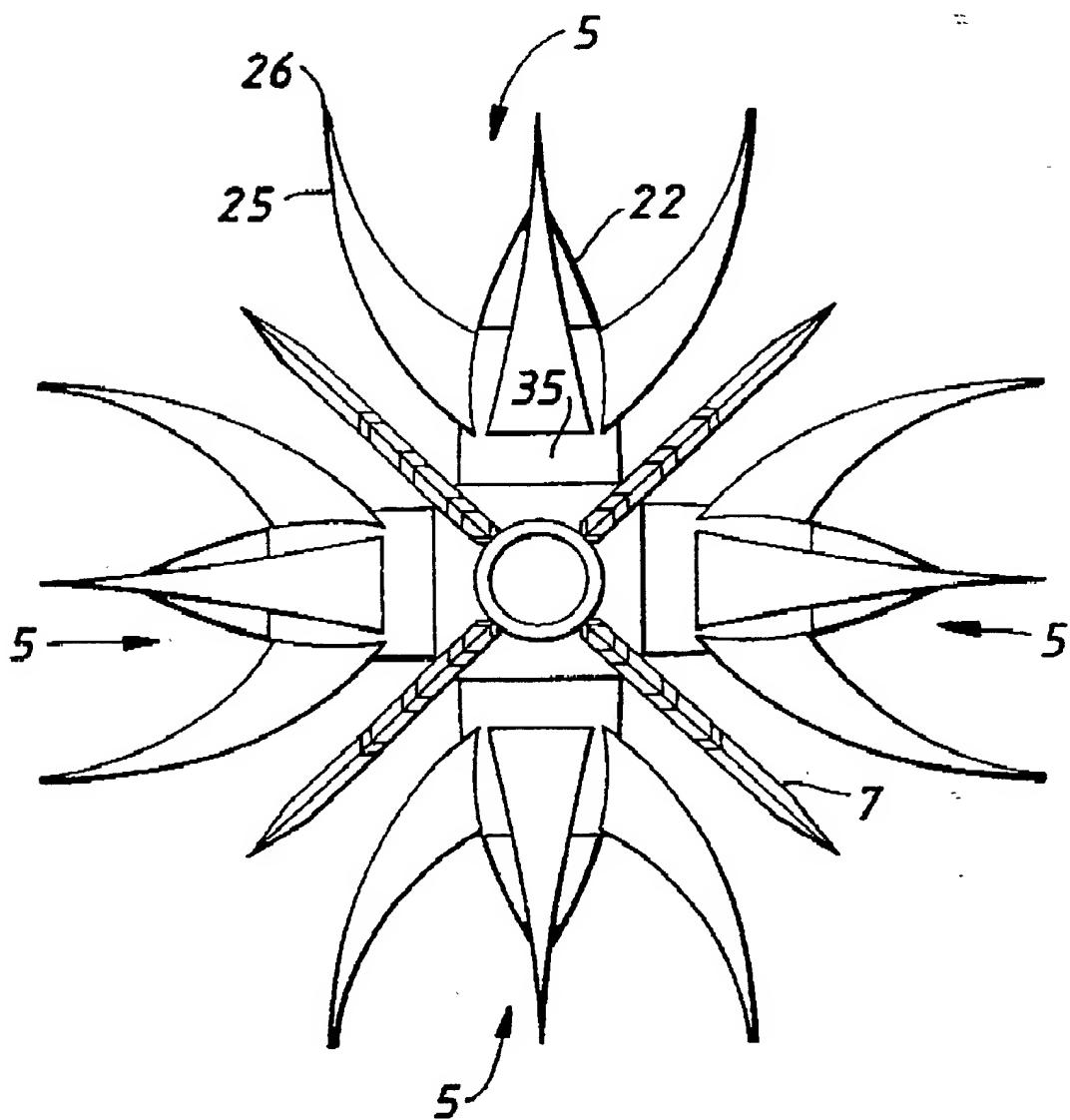
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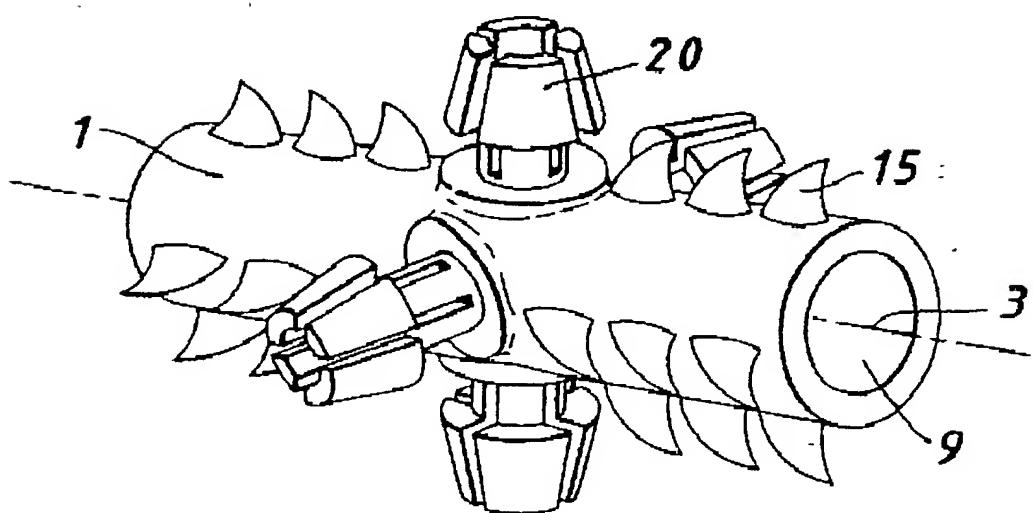
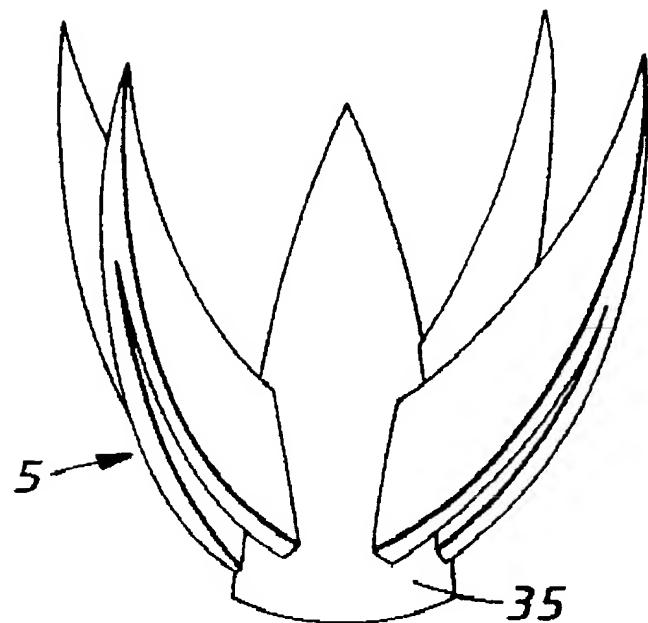
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FIG. 3.



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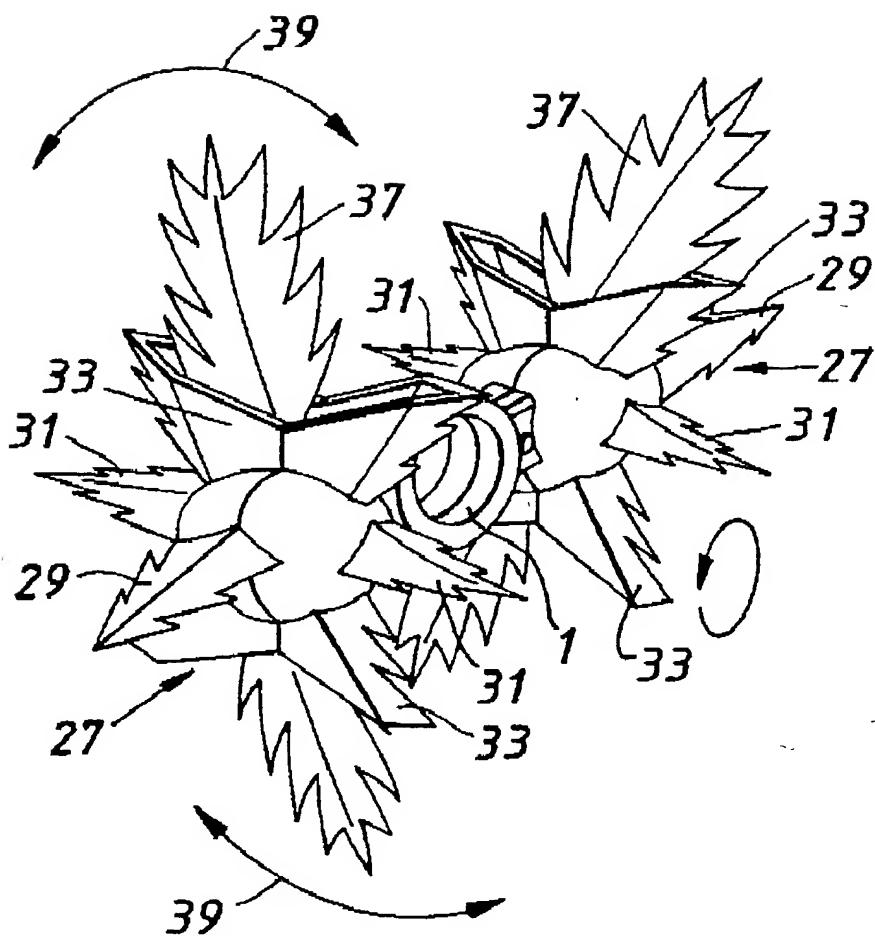
FIG. 4.



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FIG. 5.



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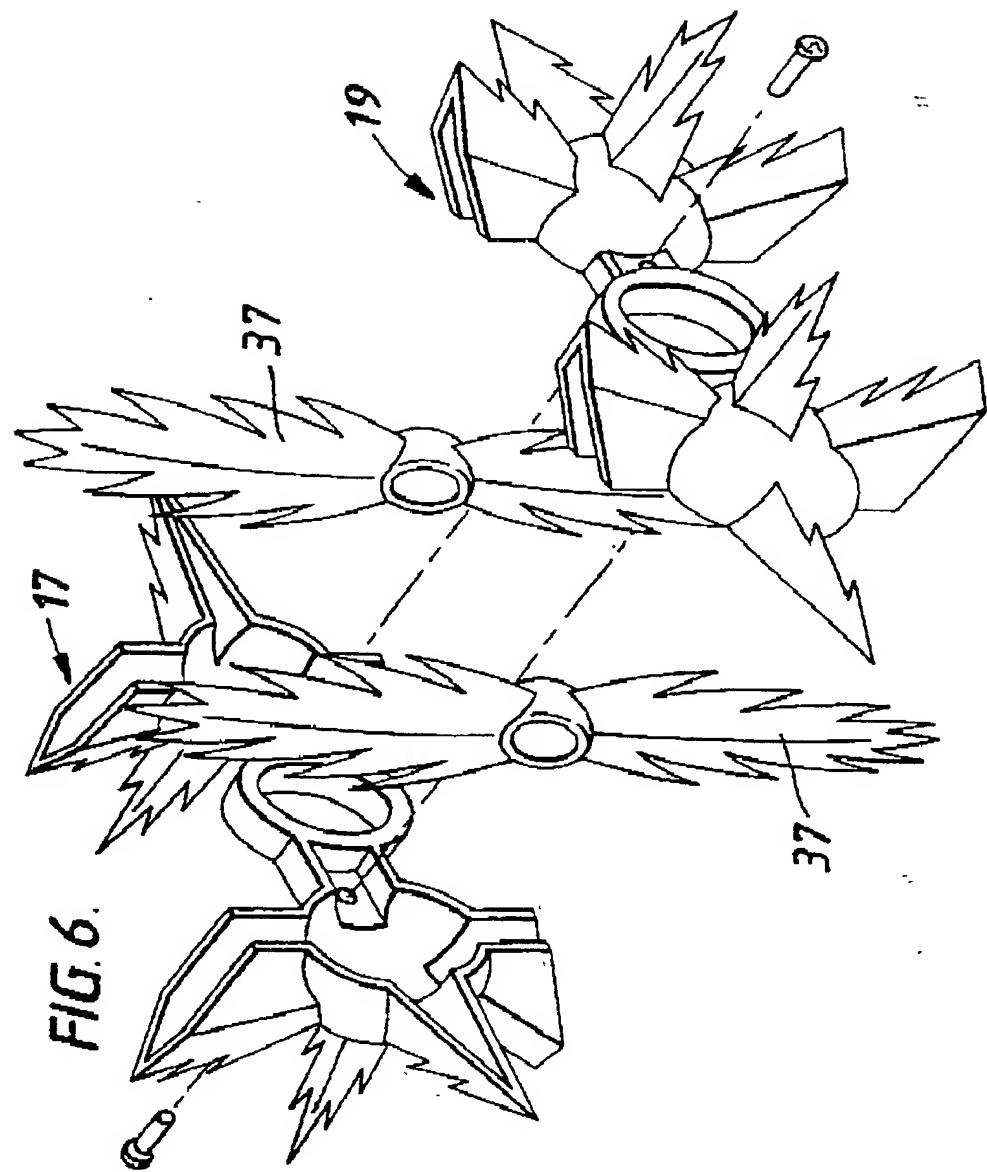


FIG. 6.

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FIG. 7.

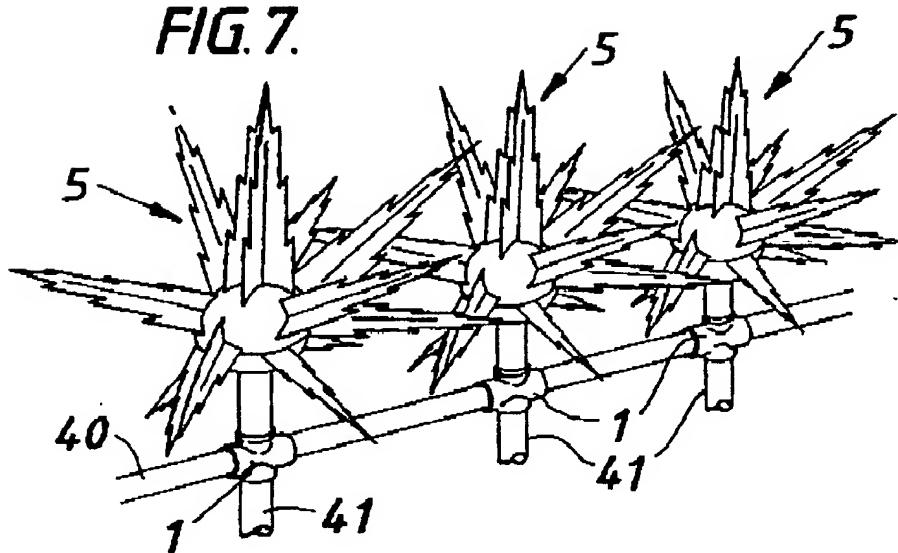
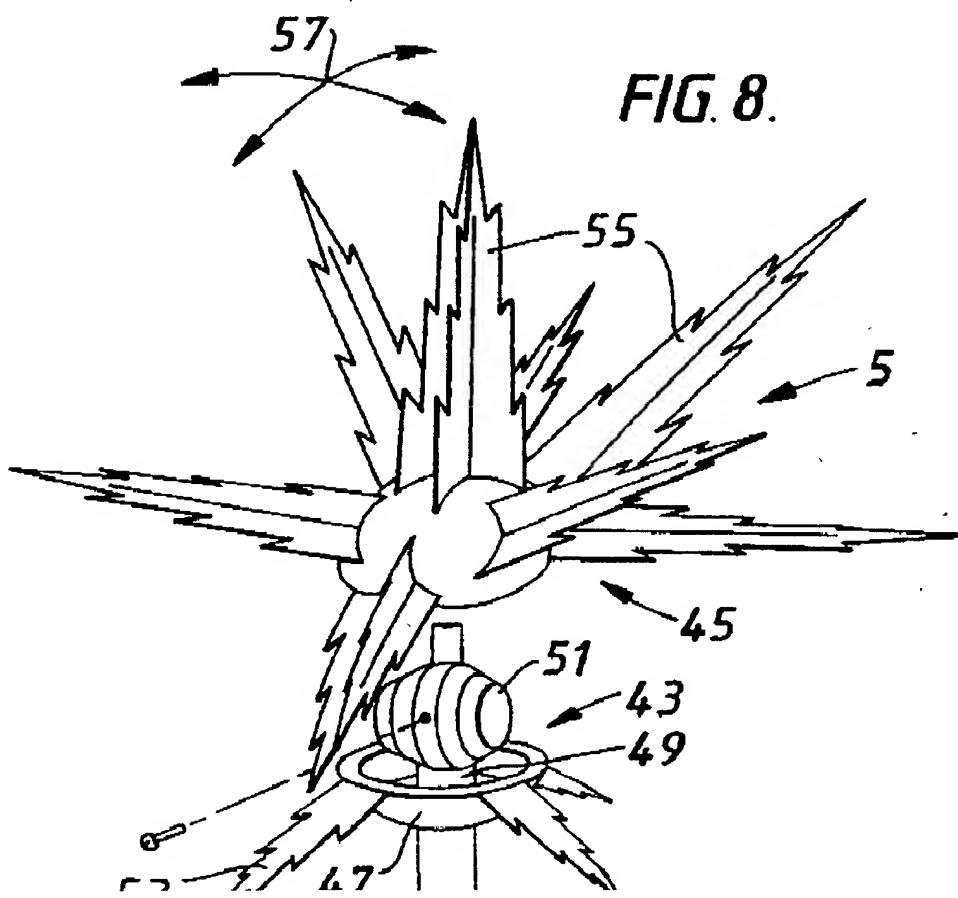


FIG. 8.



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DECLARATION AND POWER OF ATTORNEY

We, the below named inventors, hereby declare that:

Our residences, post office addresses, and citizenships are as stated below next to our respective names.

We believe we are the original, first, and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled ANTI-SCALING DEVICE, the specification of which was filed with the United States Patent and Trademark Office on January 24, 2002, as Serial No. 10/031,928. This application claims priority under 35 U.S.C §119 (e) from PCT Patent Application No. PCT/GB99/02435, filed July 26, 1999.

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

We acknowledge the duty to disclose information which is material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56.

We hereby declare that all statements are made hereby of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And we hereby appoint:

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all of the firm of Samuels, Gauthier & Stevens, our attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

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